

DRYING TECHNIQUES FOR WATER DAMAGED BOOKS AND PAPER

TECHNIQUE	PROCEDURE	SPEED	DIRECT COST	STAFF & LABOR	AVAILABILITY	RESULTS
Air Drying	Items dried by circulating air, preferably in a cool, low humidity space	days or week	negligible	high	very good	<ul style="list-style-type: none"> • swelling (20-30%) • cockling • blocking • inks running • mold threat
Dehumidification	Large, commercial dehumidifiers installed to dry building, furnishings, and collections in place	varies	varies	moderate	good	<ul style="list-style-type: none"> • limited cockling, if used only on damp items • inks may run
Freezer Drying	Items placed in self-defrosting freezer (under -10° F) are frozen, then ice is slowly sublimated	months or year	negligible (if done at home)	moderate	very good	<ul style="list-style-type: none"> • swelling • blocking
Vacuum Freeze Drying	Frozen items placed in chamber; vacuum drawn below triple point; no heat introduced. Items remain frozen during drying. Ice crystals drawn out by sublimation	1-2 weeks per load	\$5 - \$10 per volume	low	good	Very good results IF frozen quickly <ul style="list-style-type: none"> • leather & vellum may warp • photos may lose gloss
Vacuum Thermal Freeze Drying	Frozen items placed in chamber; vacuum drawn below triple point; controlled heat introduced to speed up the rate of drying. Ice crystals drawn out by sublimation	1-2 weeks per load	\$5 - \$10 per volume	low	good	Moderately good results: Similar to VFD except that heat may cause accelerated aging of cellulose. Not recommended for archival materials

Note: Water-damaged books & paper often need additional treatments (cleaning, sanitizing, deodorizing) depending on water source or damage from fire extinguishing agents. See NEDCC Preservation Leaflet “*Emergency Salvage of Wet Books and Records*” www.nedcc.org for additional information on drying techniques.